Bias in AI-based models for medical applications: challenges and mitigation strategies

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Abstract

Artificial intelligence systems are increasingly being applied to healthcare. In surgery, AI applications hold promise as tools to predict surgical outcomes, assess technical skills, or guide surgeons intraoperatively via computer vision. On the other hand, AI systems can also suffer from bias, compounding existing inequities in socioeconomic status, race, ethnicity, religion, gender, disability, or sexual orientation. Bias particularly impacts disadvantaged populations, which can be subject to algorithmic predictions that are less accurate or underestimate the need for care. Thus, strategies for detecting and mitigating bias are pivotal for creating AI technology that is generalizable and fair. Here, we discuss a recent study that developed a new strategy to mitigate bias in surgical AI systems.